At the outset, applicants are submitting herewith copies of the publications cited in the originally filed specification and noted in paragraph 1 on page 2 of the subject Official Action. A form PTO-1449 listing such publications and the fee required by Rule 97(c) are also attached. Consideration of such publications on their merits is requested.

In connection with the submission of the cited publications referenced immediately above, it was discovered that there were errors regarding the citation of the two referenced EP publications. Specifically, the cited EP-A-92921912 was discovered to actually be a published PCT application WO 93/07961, while the cited EP–A-9100973 was discovered to be a mis-cite to EP Application 9<u>5</u>100973, now published under EP 060 150. Accordingly, corrections to such citations have been presented with the amended version of the specification paragraph appearing on page 1, line 14+.

Claims 24, 29, 33, 36-41, 47 and 51 have attracted a rejection under 35 USC §102(b) as allegedly anticipated by Aanonsen et al (USP 4,213,712). Claims 24, 29 and 36 have also been rejected as anticipated by Fickle (USP 1,636,127) under 35 USC §102(b). Finally, claims 25-28, 30-32, 34-35, 42-46, 48-50 and 52-53 have been rejected under 35 USC §103(a) as allegedly "obvious" over Aanonsen et al in view of Schafhaus (USP 431,624). As will become evident from the discussion which follows, neither Aanonsen et al nor Schafhaus is appropriate as a reference against the herein pending claims.

Finally, the cited PCT/FI96/00330 has published as WO 97/01074 and WO97/46309. Accordingly, a copy of each such published WO application has been submitted herewith and noted on the accompanying form PTO-1449.

In this regard, applicants note that Aanonsen et al teach mixing of two liquids (both in the abstract and in the claims). While the text of Aanonsen et al mentions viscous liquids, but nowhere is there a disclosure of a solids-liquid suspension. Furthermore, the rotor of Aanonsen et al is ***coaxial*** with the liquid flow -- not transverse as in the presently pending claims. Specially, the Aanonsen et al reference talks about a turbine impeller, and

turbines are, just like Aanonsen et al show in the drawings, most often axial flow devices. Thus, applicants claim 24 cannot be anticipated by Aanonsen et al.

In claim 29, applicants are defining a stationary mixing member. The Examiner cites to blades 15 of Aanonsen et al. However, Aanonsen et al teach on column 4, lines 9 through 16 that blades 15 are guide blades, which direct the liquid flow more efficiently towards the rotor vanes so that the speed of the rotation of the rotor is higher in the mixing zone. In other words, blades 15 are not in the mixing zone. The location of the mixing zone is discussed in column 3, lines 52 – 63, which positions the mixing zone well downstream of the turbine part of the device.

Applicants note that, with respect to claim 33, the bearings of Aanonsen et al are not in the casing but in the stationary member 3 (column 3, lines 28 – 30).

Pending claim 36 herein defines the mixing blades. Here, the Examiner should not lightly overlook one significant difference between the Aanonsen et al structure and the present invention. Specifically in this regard, Aanonsen et al has first the turbine blades, possibly preceded by the guide vanes, for making the rotor rotate in a high speed. After the rotor -- or more specifically, after these blades and vanes -- is the location of the mixing zone. One could imagine that reference number 5 of Aanonsen et al could be considered to be the "annular narrow mixing zone between the outer periphery of the rotor and the inner wall of the housing" (abstract). In other words, Aanonsen et al's turbine blades are ***not*** the mixing blades. And, this is because the blades are fastened to a solid hub; the hub rotates about an axis parallel with the flow etcetera. Nowhere in the specification do Aanonsen et al teach that the turbine impeller would or could be used as a mixer.

In view of the above, therefore, applicants suggest that Aanonsen et al cannot anticipate any of the claims pending herein for consideration.

The applicants do not fully understand the Examiner's rationale for citing Fickle as an allegedly anticipatory reference. Naturally Fickle has a freely rotating rotor, but that feature of Fickle is really the only structural and/or functional attribute which Fickle has in

common with the present applicants' invention. The blades 14 of Fickle do not mix anything. Clearly, therefore, Fickle does not mix solid-liquid suspensions. And, Fickle does not leave the center of the rotor open. Fickle therefore fails to anticipate claims 24, 29 and 36 under 35 USC §102(b).

The Examiner cites to Schafhaus in combination with Aanonsen et al to allegedly show the "obviousness" of throttling of the mass flow. In the present invention, however, the throttling is just in front of the freely rotating rotor. How the Schafhaus reference could be combined with Aanonsen to show the required structure is not entirely clear to the applicants.

In any event, the independent claims herein have been amended slightly to stress the differences between the present invention as compared to the structures shown in the cited references. Particularly, the subject matter of claim 33 has been added to claim 24, while claims 37 – 39 have been amended so as to include the subject matter of claim 51, where appropriate. Claims 33 and 51 have thus been cancelled as redundant.

In applicants' view, none of the references shows a rotor having an ***open*** center. The Examiner has argued this by saying that the Aanonsen et al rotor center is open (Fig. 3). However, the Aanonsen et al rotor is not transverse to the flow direction. And, the rotor blades are fastened to a solid hub, which does not allow *free flow* through the rotor in the transverse direction.

That the center of the rotor according to the present invention is open in the transverse direction of fluid flow is quite significant functionally. In this regard, the Examiner will appreciate that, when the center is open as in the present invention, it also means that the rotor blades are not fastened to any cylindrical surface or any other surface, which would prevent the transverse flow of material through the rotor. One of the objects of the present invention has been to ensure the flow through the mixer in case the rotor happens to stop rotating. According to this object, therefore, the substantially thin rotor blades of the invention do not prevent the flow but merely create a small pressure

loss if the rotor is stopped, for some reason. Also, another purpose of the rotor structure is to create a turbulence in the solids-liquid mixture around the blades.

In view of the amendments and remarks presented herewith, therefore, applicants suggest that this application is in condition for allowance and Official Notice to that effect is solicited.

Respectfully submitted,

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APPENDIX I

Marked-Up Version of Specification Paragraph(s) Pursuant to 37 CFR §1.121(b)

Change the paragraph beginning at page 1, line 14 to read as follows:

Prior art mixers used for this purpose are disclosed, e.g., in US patents 5,279,709 and 5,575,559 and [in patent applications EP-A-92921912, EP-A-9100973] EP 060 150, WO 93/07961, WO-A-96/32186, and WO-A-96/33007. It is a characteristic feature of all mixers of the art that they employ a rotatable rotor in order to provide a sufficient mixing efficiency. The rotatable rotor specifically refers to a member which is connected to the drive through a shaft and most usually receives its power from the electricity supply of the mill. Furthermore, the mixer construction is usually such that a certain pressure loss occurs in the mixer. In practice, it means that the power compensation corresponding to the pressure loss caused by the mixer has been taken into account when selecting a pump which operates at some stage of the process and precedes the mixer. So, in practice, power is lost in the pump for compensating the pressure loss of the mixer as well as in the mixer itself for rotating its rotor.

APPENDIX II

Marked-Up Version of Amended Claims Pursuant to 37 CFR §1.121(c)

24. (Twice Amended) Apparatus for mixing a fluid medium with a solids-liquid suspension, comprising:

a mixer casing having an inlet attached by a flange to inlet piping, and an outlet, and defining a flow axis between said inlet and outlet;

a conduit for feeding the fluid medium into said casing or inlet piping; and

a rotor freely rotatably mounted in said casing for free rotation about an axis of rotation which is transverse to said flow axis, said rotor having a center, a shaft mounted on bearings in said casing, and blades which leave said rotor center open.

37. (Amended) Apparatus for mixing a fluid medium with a solids-liquid suspension, comprising:

a mixer casing defining an interior space and having an inlet for introduction of a mass flow of material which includes the solids-liquid suspension into said interior space, and an outlet for discharging a mixture of the fluid medium and solids-liquid suspension from said interior space;

a conduit for feeding the fluid medium into contact with the solids-liquid suspension; and

a mixing rotor freely rotatably mounted in said casing for free rotation about an axis of rotation, said axis of rotation being transverse to an axis of flow leading from said inlet to said outlet; wherein

said mixing rotor including a center, a shaft mounted on bearings in said casing, and blades, said blades leaving said rotor center open and being [mixing blades which are] positioned for contact with the fluid medium and solids liquid suspension introduced into the mixer

casing to thereby responsively cause the mixing rotor to rotate and mix the fluid medium with the solids liquid suspension.

38. (Amended) Apparatus for mixing a fluid medium with a solids-liquid suspension, comprising:

a mixer casing defining a flow axis, an inlet for introducing a mass flow of material which includes the solids-liquid suspension into said mixer casing, and an outlet for discharging a mixture of the fluid medium and solids-liquid suspension from the mixer casing;

a conduit for feeding the fluid medium into contact with the solids-liquid suspension; and

a mixing rotor freely rotatably mounted in said mixer casing for free rotation about an axis of rotation which is transverse to the flow axis of said mixer casing, wherein

said mixing rotor including <u>a center, a shaft mounted on bearings in said casing, and blades, said blades leaving said rotor center open and being</u> [includes mixing blades which are] positioned for contact with the fluid medium and solids liquid suspension introduced into the mixer casing to thereby responsively cause the mixing rotor to rotate and mix the fluid medium with the solids liquid suspension.

39. (Amended) Apparatus for mixing a fluid medium with a solids-liquid suspension, comprising:

a mixer casing defining an interior space and having an inlet for introduction of a mass flow of material which includes the solids-liquid suspension into said interior space, and an outlet for discharging a mixture of the fluid medium and solids-liquid suspension from said interior space;

a conduit for feeding the fluid medium into contact with the solids-liquid suspension;

a mixing rotor freely rotatably mounted in said mixer casing for free rotation about an axis of rotation, said axis of rotation being transverse to an axis of flow leading from said inlet to said outlet;

said mixing rotor includes a center, a shaft mounted on bearings in said casing, and blades, said [mixing] blades [which are] being positioned so as to establish an open center space of the mixing rotor, and [which] being are contacted with the fluid medium and solids liquid suspension introduced into the mixer casing to thereby responsively cause the mixing rotor to rotate and mix the fluid medium with the solids liquid suspension